tyco Electronics

M/ACOM

Termination-Insensitive Biasable Mixer, 1 - 6 GHz

MDC-163
V3

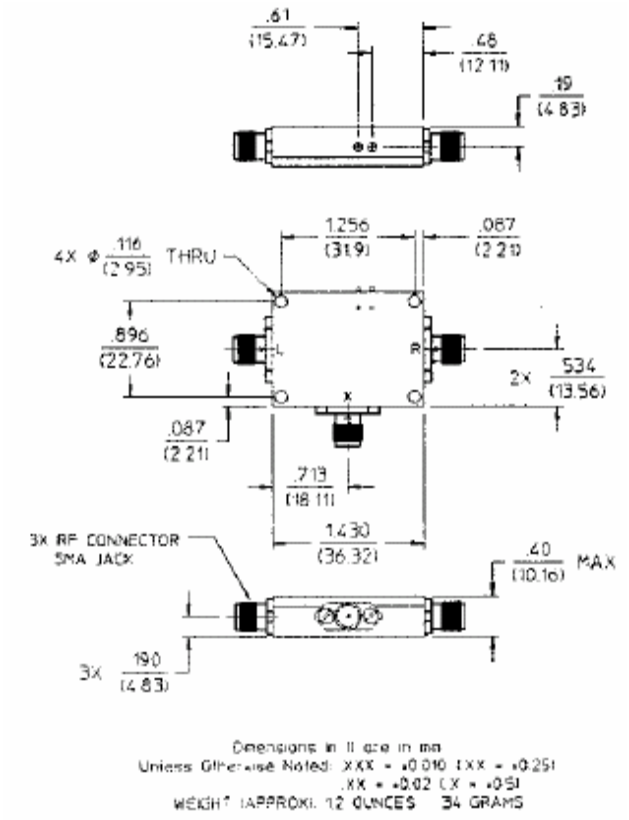
Features

- LO Drive: 0 dBm
- Intermodulation Ratio Insensitive to IF Ports Mismatches
- Conversion Loss: 7 dB Typical Midband
- Impedance: 50 Ohms Nominal
- Maximum Input Power: 500 mW max. @ 25°C, Derated 6.4 mW/°C
- Low Power: +24 dBm Max.
- DC Bias: +5, -5 VDC @12 mA each
- MIL-STD-883 Screening Available

Description

The unique design of the termination insensitive mixer (TIM) enables it to apply high reverse voltage to diodes during their “off” phase, in the LO cycle. This allows for higher power level performance with minimum distortion. In addition the TIM has internal loads that provide a good match and also absorb mixer generated LO frequency terms. Combined, these features give the mixer its insensitivity to external mismatches, plus superior VSWR. Applied bias allows this mixer to perform at low LO power levels.

C-2



- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

Electrical Specifications[1]: T_A = -55°C to +85°C

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency Range	RF, LO Ports IF Port	1 - 6 10 - 2000	GHz MHz	— —	— —	— —
Conversion Loss[2]		1 - 3 GHz 1 - 6 GHz	dB dB	— —	— —	9.0 10.5
Isolation	LO to RF	1 - 2 GHz 2 - 6 GHz	dB dB	10 13	— —	— —
	LO to IF	1 - 6 GHz	dB	13	—	—
	RF to IF	1 - 6 GHz	dB	15	—	—
RF Input	1 dB Compression 1 dB Desensitization	— —	dBm dBm	— —	-2 -6	— —
SSB Noise Figure	Within 1 dB of Conversion Loss Max.	—	—	—	—	—
3rd Order Input Intercept		2.0 GHz 4.0 GHz 6.0 GHz	dBm dBm dBm	— — —	7.0 8.0 5.0	— — —
3rd Order Intercept Degration	@ IF Termination VSWR 3:1	—	dB	—	1.5	—

1. All specifications apply when operated at +0 dBm available LO power with 50 ohm source and load impedance.
2. For IF frequencies of 10 - 500 MHz and an RF of –10 dBm or lower.
3. Independent of sum frequency match.

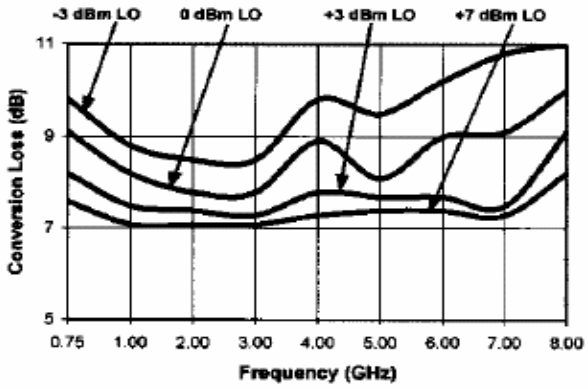
This product contains elements protected by United States Patent Number 4,224,572

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

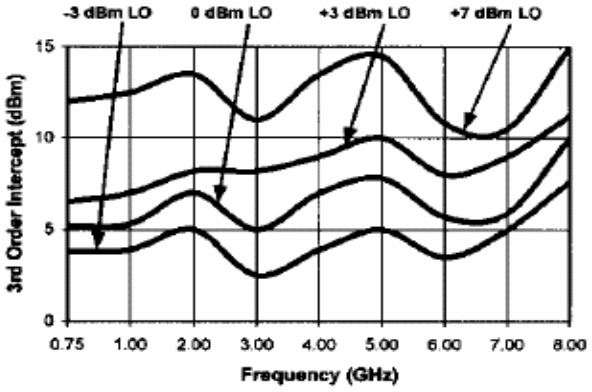
Visit www.macom.com for additional data sheets and product information.

Typical Performance Curves

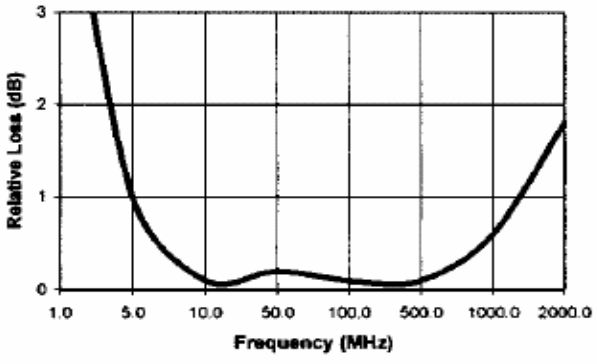
Conversion Loss



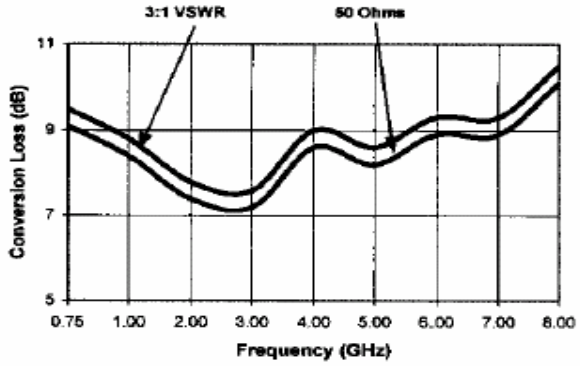
3rd Order Intercept



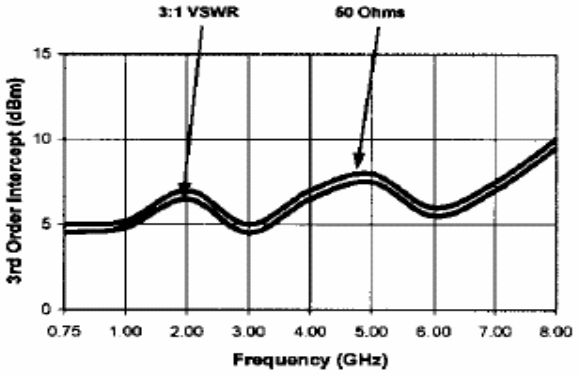
IF Port Response



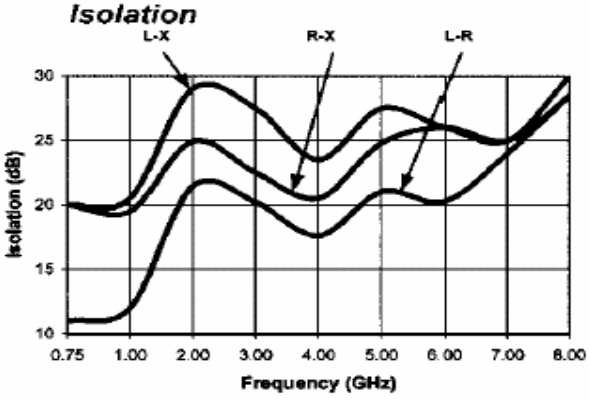
Conversion Loss vs. IF Port Termination [3]



3rd Order Intercept vs. IF Port Termination [3]



Isolation



Ordering Information

Part Number	Package
MDC-163 SMA	C-2

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.